

SEISMIC BULLETIN

(地震報告)

OF THE

NIIGATA

METEOROLOGICAL OBSERVATORY

FOR THE YEAR

1930.



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		誤	正
P 2	3 行	\bar{P}	P
"	4 行	P	\bar{P}
"	7 行	S	\bar{S}
P 12	3 行	2.7 + 2500	一行上ル
P 15	最下欄	M_{SN}	M_{SE}
P 20	18行	58m	38m

INTRODUCTORY REMARKS

- Distinctive name of station: The Niigata meteorological observatory lies on the west coast of Niigata port, at No 5932, Hamaura Nishfunami street at Niigata city and Niigata prefecture.
- Lithologic foundation: Sands of the alluvial series—On the Northern slope of the sandy hill were founded in delta of the river Shinano.
- Position of observatory: $L = 37^{\circ} 50'$ (North Latitude)
 $\lambda = 139^{\circ} 03'$ (From greenwich)
 $h = 7,0^m$ (From mean sea level)

SEISMOGRAPHICAL CONSTANTS

Instrument	Component	Mass	Dampper	T_0	$\frac{r}{T_0^2}$	ξ	V
Omori's	E - W	15 ^{kg}	—	3.6 ^s	0.029	—	30
	N - S	"	—	3.7	0.015	—	"
" {From September	E - W	"	—	3.2	0.029	—	"
	N - S	"	—	3.5	0.027	—	"
C. M. O.	E - W	2.19	Oil	7.0	0.017	1.03	2
	N - S	2.17	"	7.0	0.020	1.49	"
	u - D	0.21	"	1.5	0.006	0.87	"
Imamura's	E - W	2.4	Oil	7.1	0.019	2.58	1
	N - S	2.5	"	5.7	0.019	2.14	"
	u - D	0.4	"	2.3	0.059	1.55	"
Mag Dampning Seismograph	NE-SW	18.84	Mag	4.0	0.013	1.5	7
	NW-SE	18.82	"	"	0.013	1.5	"

SYMBOLS AND NOTATIONS

1. Phases of the seismogram.

\bar{P} = First preliminary tremors. (longitudinal).

P = Individual, or upper first preliminary tremors.

PR_n = Longitudinal waves n times reflected at the earth's surface.

\bar{S} = Second preliminary tremors. (transverse)

S = Individual, or upper second preliminary tremors.

SR_u = Transverse waves n times reflected at the earth's surface.

PS = waves changed from longitudinal to transverse oscillation.

or vice versa, through reflection at the earth's surface.

L = Long waves at the beginning of the surface phase.

M = Maximum Amplitude in principal phase.

C = Prominent Waves among after tremors.

F = End of discernible movements.

2. Nature of the motion.

i = Sudden beginning of the motion.

e = Gradual beginning of the motion.

A = Amplitude of the earth's motion in microns.

A_E = E—W component of A .

A_N = N—S component of A .

Period = Time of one complete oscillation.

3. Distance of epicenter.

Δ = Distance of epicenter ; for the near earthquakes calculated by the Omori's formula

$\Delta = 7.42t$, for the distant earthquakes, by the Wiechert's, Zoeppritz's and Zeissig's time distance curve.

4. Time used. Greenwich mean civil time is adopted for all determinations.

March, 1931.

T, Sasaki.

Director of the Niigata Meteorological Observatory.

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		μ	μ	μ		
1	Jan. * 5	P	10	25	13				...	A far distant quake, probably in Kamchatka.	
		L	...	...	...			
		M _{NE}	"	27	30	4.2	±286				
		M _{NW}	"	"	49	4.2		±355			
		C	"	30	21						
		F	10	34	20						
2	Feb. 1	eP	13	35	29	Probably, local quake.	
		eC	"	38	08						
		eF	13	40	50						
3	Feb. 2	P	8	08	11				289.4	Sea off Kajima.	
		L	"	"	50						
		M _{IN}	"	09	24	3.3		±147			
		M _{IE}	"	"	35	3.3	+343				
		C	"	12	27						
		eF	8	20							
"	" * "	P	8	08	22				237.4		
		L	"	"	50						
		M	"	09	25	4.1	±143	±143			
		C	"	13	26						
		F	8	18	10						
4	Feb. 21	eP	8	37	59				259.7	Near, Siofuki cape.	
		L	"	38	34						
		M _{IE}	"	39	41	3.2	±167				
		M _{IN}	"	"	"	3.2		±142			
		C	"	41	47						
		F	8	45							
5	Feb. 22	eP	20	22	55				230.0	Ditto.	
		eL	"	23	26						
		M _{IE}	"	24	37	3.5	±157				
		M _{IN}	"	"	"	3.5		±90			
		C	"	28	00						
		F	20	32	00						
6	Feb. 23	eP	19	17	00	...			333.9	Ditto.	
		eL	"	"	45						
		C	"	20	26						
		F	19	23	07						
7	Feb. 28	P	18	32	09.7	...		...	Ditto.

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks		
			h	m	s		A_E	A_N	A_z				
			h	m	s	s	μ	μ	μ	km			
8	March.	2	C	18	35	08							
			F	18	39	36							
			eP	2	43	54	...				...	Local quake.
			eF	2	49	10							
9	March.	3	P	21	15	54							
			M _{1E}	"	17	10	3.5	± 70			...	Ditto.	
			C	"	19	45							
			eF	21	23	12							
10	March.	3	eP	22	56	14.5	...						
			eF	23	00	22						Ditto.	
11	March.	4	eP	3	51	49							
			M _{1E}	"	53	30	3.5	± 100			...	Near, Siofuki cape.	
			C	"	56	12							
			eF	3	59	19							
12	March.	4	P	5	12	03.5				241.1		Ditto.	
			L	"	"	36							
			M _{1N}	"	"	58	3.5	± 197					
			M _{1E}	"	13	02	3.5	± 283					
			C	"	17	20							
			eF	5	23	28							
13	March.	6	eP	...	...	...				...		NNW off Ogasawara ils.
			L	12	35	45.8							
			M _{1E}	"	37	59	3.5	± 183					
			C	"	40	12							
			eF	12	45	10							
14	March.	8	eP	8	37	50	...				282.0		Sea off Kajima.
			L	"	38	28							
			C	"	39	44							
			F	8	44	20							
15	March.	9	eP	4	41	09							
			L	"	"	54					333.9		Siofuki cape.
			M _{1E}	"	42	19	3.5	± 117					
			C	"	43	43							
			eF	4	47								
16	March.	9	P	18	41	55				430.4		Probably, NW off Japan sea.	

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks
			h	m	s		μ _E	μ _N	μ _Z		
17	March. 9	L	18	42	53				293.1	Siofuki cape.	
		M _{IN}	"	"	31	3.5		±533			
		M _{IE}	"	43	55	3.5	±367				
		C	"	47	42						
		eF	18	54	14						
		P	19	55	22.5						
18	March. 9	L	"	56	02				215.2	E off Miyako.	
		M _{IN}	"	57	27	3.5		±220			
		M _{IE}	"	"	31	3.5	±517				
		C	20	01	34						
		eF	20	10	17						
		eP	20	13	58	...					
19	March. * 11	eL	"	14	27				...	E off Karafuto ils.	
		C	"	17	00						
		eF	20	19	50						
20	March. 11	P	1	31	43				215.2	Siofuki cape.	
		M _{SE}	"	34	36	5.0	±712				
		eF	1	41	00						
		P	22	40	31	...					
21	March. 12	L	"	41	00				237.4	Middle course of the Kitakami river.	
		C	"	43	00						
		F	22	46	20						
		M _{IE}	"	42	06	3.5	±100				
		eF	1	48	00						
22	March. 12	P	1	40	37				...	Siofuki cape.	
		L	"	41	09						
23	March. 13	eP	12	47	50	...			244.9	Ditto.	
		eF	12	52	18						
		M _{IE}	"	32	10	3.5	±113				
		M _{IN}	"	"	32	3.5		±113			
		C	"	34	43						
24	March. 14	F	4	38	15				...	E off Kinkazan.	
		eP	15	20	38	...					

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Δ km	Remarks
			h	m	s		A_E μ	A_N μ	A_z μ		
25	March. 14	eF	15	26	54						
		eP	15	42	01	...					
		eF	15	48							
26	March. 21	P	23	25	19	...			170.7	Siofuki cape.	
		eL	"	"	42						
		C	"	27	43						
		F	23	31							
27	March. 22	P	17	51	36				244.9	Ditto.	
		L	"	52	09						
		M _{1N}	"	"	18	3.5		+750			
		M _{1E}	"	"	23	"		+1283			
		M _{2E}	"	53	00	"		± 1320			
		M _{2N}	"	"	11	"		-1193			
		C _{MN}	18	00	46	4.5		± 267			
		F	"	16							
		"	" * "	P	17	51	35				259.7	Ditto.
28	March. 26	L	"	"	10						
		M _{SE}	"	52	32	4.9		± 600			
		M _{NE}	"	53	07	4.5		± 701			
		C	"	58	20						
		F	18	12	00						
		P	14	23	42.4				253.0	Ditto.	
		L	"	24	10						
29	March. 26	M _{1N}	"	25	07	3.3		± 228			
		M _{1E}	"	"	34	3.3		± 483			
		C	"	30	13						
		F	14	39	00						
		P	16	20	45	...			...	A far distant quake.
30	March. 26	C	"	32	12						
		F	17	09	00						
31	March. 27	P	20	40	46	...			...	A Local quake.
		F	20	54	00						
31	March. 27	P	1	42	29				230.0	E off Siofuki cape.	
		L	"	43	00						
		M _{1N}	"	44	19	3.3		± 258			
		M _{1E}	"	"	28	3.3		± 483			

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks	
			h	m	s		AE	AN	Az			
			h	m	s	s	μ	μ	μ	km		
32	April.	1	C	1	48	49					222.6	Siofuki cape.
			F	1	55	30						
			P	23	05	30						
			L	"	06	00						
			M _{1N}	"	07	19	3.5		±142			
			M _{1E}	"	"	20	3.5	±287				
33	April.	10	C	"	10	36				252.3	Lower course off Naka.	
			F	23	15	16						
			P	8	47	21						
			eL	"	"	55						
			M _{1N}	"	48	21	3.8		±117			
			M _{1E}	"	"	55	3.8	±1133				
34	April.	24	C	"	51	40				445.2	SE off Kunijiri ils.	
			F	8	56	07						
			P	6	52	05						
			L	"	53	05						
			M _{1N}	"	54	53	3.5		±500			
			M _{1E}	"	"	56	3.4	±350				
			M _{2N}	"	56	27	3.7		±550			
			M _{2E}	"	"	30	3.7	±633				
35	April.	29	C	7	01	06				...	A far distant quake.	
			F	7	29	40						
36	May.	1	eP	3	54	04	...			...
			F	4	20	00						
37	May.	1	eP	1	07	21	...			...
			eF	1	13	11						
37	May.	1	P	9	58	39.5				289.4	N off Kujukuri.	
			L	"	59	18.5						
			M _{1E}	"	"	29	...	...		
			M _{1N}	"	"	43	...	...		
			C _{1E}	10	10	10	4.5	±23				
			C _{1N}	"	"	46	4.5	±22				
			F	...	...	...			
			P	9	58	40						
"	"	* "	L	"	59	18				282.0	Ditto.	
			M _{1SE}	"	"	27	4.9	-2357				
			M _{1NE}	"	"	30	4.8	+1714				

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		AE	AN	Az		
			h	m	s	s	μ	μ	μ	km	
		M ₂ NE	10	00	10	5.0		-2357			
		M ₂ SE	"	"	38	4.8	±3286				
		C	"	09	08	4.8		±40			
		F	10	27	28						
38	May.	1	P	10	17	12	Ditto.
			C	"	20	00					
			F	10	31	30					
39	May.	1	P	13	21	15				311.6	Ditto.
			L	"	"	57					
			M ₁ E	"	22	07	3.5	+1120			
			M ₁ N	"	"	30	3.5		+967		
			C	"	28	55					
"	"	* "	P	13	21	15				311.6	Ditto.
			L	"	"	57					
			M ₁ NE	"	22	24	4.0	±500			
			M ₁ SE	"	"	35	4.0		±463		
			C	"	27	49					
			F	13	36	25					
40	May.	2	eP	15	11	45	A local shock.
			eF	15	17						
41	May.	4	eP	21	56	37	Ditto.
			eF	22	00						
42	May.	5	eP	1	57	03	Middle valley of the Kogai river.
			eF	2	02						
43	May.	5	eP	22	55	29				6089.3	A far distant earthquake. probably in southern distaict of Burma.
			PR ₁	"	59	38					
			S	23	02	01					
			SR ₁	"	04	30					
			IS	"	06	41					
			L	"	09	10					
			M ₁ N	"	13	42	13.0		+233		
			M ₁ E	"	14	02	12.3	±183			
			eCE	"	30	00	11.0	±58			
eF	0	15									
44	May.	9	eP	11	54	02	On the cape of Siofuki.	

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		μ	μ	μ		
		eC	11	58	10						
		eF	12	02							
45	May. 9	eP	17	37	29	...			...	Ditto.
		eF	17	40							
46	May. 12	eP	21	28	03				215.2	Ditto.	
		eL	"	"	29						
		M _{1E}	"	29	01	3.2	±147				
		M _{1N}	"	"	27	3.2		±113			
		eC	"	33							
		F	21	37	37						
47	May. 14	eP	4	52	00	...			...	Ditto.
		eF	4	55	00						
48	May. 14	P	8	57	34				230.0	Ditto.	
		L	"	58	05						
		M _{1E}	"	59	02	3.0	±92				
		C	9	01	34						
		F	9	05	20						
49	May. 14	eP	17	36	44	...			...	Ditto.
		eF	17	41							
50	May. 15	eP	1	34	32				...	Ditto.	
		M _{1E}	"	37	31	3.0	±40				
		eF	1	41							
51	May. 15	eP	15	59	24				...	Ditto.	
		M _{1E}	16	00	42	2.7	±40				
		C	"	02	40						
		eF	16	07							
52	May. 15	eP	19	14	36	...			...	Ditto.
		F	19	19	40						
53	May. 15	eP	21	50	20	...			...	Ditto.
		eF	21	53	30						
54	May. 16	eP	4	40	18				296.8	N off Kujukuri.	
		L	"	"	58						
		M _{1N}	"	41	08	3.0		±63			
		M _{1E}	"	"	29	3.0	±40				

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks	
			h	m	s		A_E	A_N	A_z			
			h	m	s	s	μ	μ	μ	km		
55	May. 16	C	4	42	53							
		eF	4	45	30							
		eP	22	36	06	...					A local shock.	
		eF	22	39	20							
6	May. 17	P	5	15	05					293.1	On the cape of Siofuki.	
		L	"	"	44.5							
		M _{1E}	"	16	31	3.6	+483					
		M _{1N}	"	"	36	4.0		+733				
		M _{2E}	"	17	09	4.0	+1060					
		M _{2N}	"	"	30	3.7		-693				
		M _{3F}	"	"	55	3.5	+740					
		M _{3N}	"	"	56	3.5		+1067				
		C	"	23	24							
		F	5	31	30							
"	" * "	P	5	15	05					296.8	Ditto.	
		L	"	"	45							
		M _{1NE}	"	17	09	3.3	± 514					
		M _{1NW}	"	"	31	4.0		+759				
		eC	"	22								
		F	5	30								
57	May. 18	eP	9	10	45	...				...	Ditto.
		eF	9	25								
58	May. 18	eP	15	27	00	...				...	Ditto.
		F	15	34	20							
59	May. 19	P	19	33	18	...				252.3	Ditto.	
		eL	"	"	52							
		eF	19	38	22							
60	May. 20	P	0	08	45.4	...				...	A local shock.
		C	"	17	34							
		F	0	24	36							
61	May. 21	P	7	12	33	...				...	N off Kujukuri.
		C	"	14	43							
		eF	7	18								
62	May. 22	P	2	38	32	...				...	On the cape of Siofuki.
		eF	2	43								

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km	
63	May. 24	P	1	39	11					311.6	S off Oshima ils.
		L	"	"	53						
		M _{1N}	"	"	33	3.0	+1800				
		M _{1E}	"	40	40	3.0	+2100				
		M _{2N}	"	41	35	2.7	±1500				
		M _{2E}	"	"	40	2.5	-1830				
		M _{3E}	"	42	48	3.3	±1867				
		M _{3N}	"	43	19	3.3	-1500				
		C	"	50	57	3.5	±12				
F	2	04	20								
"	" * "	P	1	39	11					319.1	Ditto.
		L	"	"	54						
		M _{1N}	"	40	44	3.5	±1214				
		M _{1E}	"	"	47	3.0	±1428				
		C	"	46	00						
		F	1	59	30						
64	May. 24	P	6	35	11	...				267.1	SE off Kinkazan.
		L	"	"	47						
		F	6	42	45						
65	May. 27	P	3	35	30	SE of the Irimo cape.
		C	"	37	35						
		eF	3	40							
66	May. 27	P	21	20	39	...				9.0	E of the Sioya cape.
		L	"	"	40.4						
		C	"	22	00						
		F	21	25	00						
67	May. 29	P	4	32	35	On the lower valley of the river Naka.
		eC	"	36	00						
		eF	4	39	20						
68	May. 30	P	12	43	58					...	On the mouth of the river Noshiro.
		M _{1N}	"	44	47	3.2	±48				
		M _{1E}	"	45	02	2.8	±63				
		eC	"	47							
		eF	12	49							
69	June. 1	P	1	58	58.2					192.9	Ditto.
		L	"	59	24.2						
		M _{1N}	"	"	42						

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		AE	AN	Az		
		M _{1E}	1	59	49						
		M _{3E}	2	02	21						
		C	"	10	49	2.7	+2500				
		F	2	27	08						
"	" * "	P	2	58	57				192.9	Ditto.	
		L	"	59	23						
		M _{SE}	"	"	42	4.8	-3701				
		C	3	06	50						
		F	3	23	00						
"	" * "	P	2	58	57				184.8		
		L	"	59	21.9						
		M _E	"	"	42	5.0	+3850				
		M _N	"	"	"	4.8	+2750				
		M _Z	"	"	"	1.9		±300			
		C	3	06	08						
		C _Z	"	00	51						
		F	"	20	50						
		F _Z	3	04	50						
70	June. 1	P	18	02	48	...			...	NE sea off the cape Shioya.	
		F	18	04	40						
71	June. 1	P	18	19	15	...			207.8	On the middle valley of the river Kitakami.	
		L	"	"	43						
		M _{IN}	"	21	01	3.4		±97			
		M _{1E}	"	"	08	3.4	±120				
		C	"	22	09						
		F	18	26	19						
72	June. 4	eP	3	14	29	...			...	On the Okhotsuku sea.	
		eC	"	17							
		F	3	21	30						
73	June. 4	eP	18	58	15	...			...	A far distant quake.	
		eF	19	15							
74	June. 9	P	0	46	38.5				319.1	ENE sea off the cape Shioya.	
		L	"	47	22						
		M _E	"	"	45	3.5	±63				
		eC	"	49							
		eF	0	52							

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Δ km	Remarks
			h	m	s		A _E μ	A _N μ	A _Z μ		
75	June. 11	P	9	57	59.3				331.7	At Obihiro Hokaido.	
		L	"	58	44						
		M _E	"	59	07	2.9	± 90				
		M _N	"	"	37	2.9		± 97			
		C	10	03	48						
		eF	10	28							
76	June. 17	eP	10	59	53	...			259.7	SSE off the cape Shioya.	
		L	11	00	28						
		C	"	03	38						
		eF	11	07	30						
77	June. 18	P	21	12	37.5				241.1	E sea off the cape Shioya.	
		L	"	13	10						
		M _{1E}	"	"	14	3.0	± 167				
		M _{2N}	"	"	18	3.0		± 97			
		M _{2E}	"	14	40	3.0	± 187				
		C	"	16	37						
		eF	21	22							
78	June. 23	P	15	14	57	...			244.9	Middle valley of the river Edo.	
		eL	"	15	30						
		eC	"	17	00						
		eF	15	19	20						
79	June. 27	P	23	05	58.5	...			133.6	Upper valley of the river Arita.	
		L	"	06	16.5						
		C	"	07	30						
		F	23	09	16						
80	June. 29	P	9	25	54	...			215.2	W part of the lake Kasumigaura.	
		L	"	26	23						
		C	"	28	36						
		eF	9	31							
81	July. 3	P	6	11	48.5	...			7564.1	A far distant quake.	
		PR ₁	"	12	42						
		S	"	15	40						
		SR ₁	"	16	52						
		SR ₂	"	19	27						
		SR ₃	"	23	10						
		FS	"	26	23						
		L	"	29	15						
		C	"	45	24						

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks
			h	m	s		A_E	A_N	A_z		
						μ	μ	μ	km		
		eF	7	06							
82	July. 5	P	1	34	13				155.8	On the lower part of the Naka river.	
		L	"	"	34						
		M _{1N}	"	"	58	2.2	+160				
		C	"	36	05						
		eF	1	42							
83	July. 6	eP	17	57	30				...	NE sea off the cape Sioya.	
		L	...	...	...			
		M _{1N}	"	58	12	2.9	± 88				
		F	18	02	40						
84	July. 10	P	20	38	58	...			...	Mount of Omuro.
		F	20	44	15						
85	July. 10	P	21	35	18	...			374.7	ESE sea off the cape Gozen.	
		L	"	36	08.5						
		C	"	38	42						
		eF	21	46							
86	July. 11	P	0	49	00.5	...			107.6	NE sea off the cape Sioya.	
		eL	"	"	15						
		C	"	50	22						
		eF	0	51	40						
87	July. 14	P	4	42	40	...			...	A far distant quake.
		F	5	17	30						
88	July. 14	P	19	24	57	...			252.3	Near the sea of Kajima.	
		L	"	25	31						
		C	"	30	05						
		eF	19	35							
89	July. 20	eP	8	21	26	...			...	SE sea off Kushiro.
		eF	8	28							
90	July. 20	eP	14	52	50	...			...
		eF	14	58							
91	July. 23	P	4	28	03				571.3	SE sea off the Itrophe ils.	
		S	"	"	39						
		L	"	29	20						
		M _{2N}	"	30	25	3.5	-300				

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks
			h	m	s		AE	AN	Az		
						μ	μ	μ	km		
		M _{2E}	4	30	28	3.5	-1050				
		M _{3E}	"	31	"	3.5	±683				
		M _{3N}	"	"	52	3.5		±750			
		C	"	37	00	"		±12			
		eF	5	10							
"	"	*	"	"	"						
		P	4	28	05				356.2		Ditto.
		S	"	"	32						
		L	"	"	53						
		M _{NE}	"	30	28	3.7	+357				
		M _{NW}	"	"	"	2.4		±143			
		C	"	37	00						
		eF	4	53							
92	July. 30	eP	15	42	26	...			192.9		W sea of the Nodo.
		eL	"	"	52						
		C	"	44	25						
		eF	15	47	06						
93	Aug. 10	eP	22	12	31	...			192.9		Near the river of Kogai.
		L	"	"	57						
		C	"	14	39						
		F	22	17	15						
94	Aug. 15	P	11	44	11.6	...			174.4		Mount of Higane.
		L	"	"	35.1						
		C	"	46	37						
		F	11	50	00						
95	Aug. 17	P	18	29	22				237.4		N part of Uraga.
		PS	"	"	36						
		L	"	"	54						
		M _{1E}	"	30	16	2.5	±367				
		M _{1N}	"	"	17	3.5		+733			
		M _{2N}	"	31	06	3.0		-750			
		M _{2E}	"	"	13	3.2	±967				
		C	"	36	40						
		eF	18	49							
"	"	*	"	"	"						
		P	18	29	22				237.4		Ditto.
		PS	"	"	45						
		L	"	"	54						
		M _{NE}	"	30	23	3.0	±286				
		M _{SN}	"	"	25	4.0		±243			

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Δ km	Remarks
			h	m	s		A _E μ	A _N μ	A _Z μ		
96	Aug.	19	C	"	36	40				296.8	Sea off Kajima.
			F	18	45	40					
			P	4	42	51					
			L	"	43	31					
			M _{1E}	"	"	48	3.0	± 113			
			C	"	48	19					
"	"	* "	F	4	56	35				...	Ditto.
			P	4	43	13					
			C	"	48	10					
97	Aug.	19	F	4	53	10				259.7	N sea off the Oshima ils.
			P	21	41	28					
			L	"	42	03					
			M _{1E}	"	43	00	3.5	± 67			
			C	"	45	36					
98	Aug.	20	F	21	51	40				259.7	N part off Kujukurihama.
			P	2	42	20.5					
			L	"	"	55.5					
			M _{1N}	"	43	21	3.5	+733			
			M _{1E}	"	"	32	3.8	+617			
			C	"	50	22					
"	"	* "	F	3	01				267.1	Ditto.	
			P	2	42	20					
			L	"	"	56					
			M _{SE}	"	43	07	4.0	± 471			
			C	"	47	12					
99	Aug.	21	F	2	55				3453.7	W sea off Kunishima ils.	
			P	5	59	24					
			PR ₁	6	00	07					
			PR ₂	"	01	12					
			SR ₁	"	03	24					
			SR ₂	"	04	32					
			L	"	06	22					
			M _{1N}	"	08	31	13.5	± 50			
			M _{1E}	"	"	"	13.0	± 33			
			C	"	17	46					
100	Aug.	21	eP	6	46				348.7	S sea off the cape Irimo.	
			P	19	45	27					

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks
			h	m	s		μ _E	μ _N	μ _Z		
		L	19	46	14						
		M _{1E}	"	47	01	2.5	±133				
		M _{1N}	"	"	"	2.5		-150			
		C	"	51	40						
		F	19	57	50						
"	" * "	P	19	45	27	...			371.0		Ditto.
		L	"	"	17						
		C	"	51	24						
		F	19	55	10						
101	Aug. 22	P	10	31	35				252.3		Sea of Choshi.
		L	"	32	09						
		M _{1E}	"	"	13	3.8	±42				
		C	"	35	06						
		eF	10	39							
102	Aug. 26	P	21	41	48	...			289.4		E sea off the cape Irimo.
		L	"	42	27						
		C	"	44	48						
		F	21	48	16						
103	Aug. 30	eP	5	04	40	...			378.4		Near the strait of Kunishiri.
		eL	"	05	31						
		C	"	10	24						
		eF	5	14							
104	Sept. 4	P	13	18	58.5				...		E sea off the cape Kinkazan.
		M _{1E}	"	19	58	3.2	±100				
		M _{1N}	"	"	"	3.2		±100			
		C	"	21	59						
		F	13	26	46						
"	" * "	P	13	18	58.5	...			133.6		Ditto.
		L	"	19	16.5						
		F	13	25	20						
105	Sept. 11	P	7	24	50	...			...		Almost mount of Asama.
		C	"	30	13						
		eF	7	39	20						
106	Sept. 17	P	19	54	12				226.3		SSE sea off the cape Kinkazan.
		L	"	"	42.5						
		M _E	"	"	45	3.6	±100				

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks
			h	m	s		s	μ	μ			$\mu$
107	Sept. 22	C	19	58	17				3113.6	A far distant quake. Hihualaya mountains.	
		F	20	02	32						
		eP	8	18	53						
		eL	"	24	59						
		M _E	"	29	00	12.0	± 40				
		C	"	39	32						
"	" * "	eP	8	18	52	...			3264.1	Ditto.	
		eL	"	25	21						
		C	"	34	50						
		eF	8	46							
108	Sept. 27	P	4	55	49.3				111.3	A local quake, lower part of the river Hemekawa.	
		L	"	56	04.3						
		M _{1E}	"	"	05.2	Very Suddenly	+727				
		M _{1N}	"	"	05.2	1.5	-667				
		M _{2E}	"	57	04	3.0	-167				
		M _{2N}	"	"	"	3.0	-667				
		M _{3N}	"	"	53	2.2	-400				
		M _{3E}	"	58	00	3.5	± 467				
		C	5	02	00						
		F	5	10	06						
"	" * "	P	4	55	50				91.2	Ditto.	
		L	"	56	02.3						
		M _{SE}	"	"	03.6	1.2	+400				
		M _{NE}	"	"	"	1.2	+414				
		C	5	00	42						
		eF	5	09							
"	" * "	eP	4	55	50				100.3	Ditto.	
		L	"	56	03.5						
		M _E	"	"	04.2	急	+500				
		M _N	"	"	"	"	-350				
		M _{ZP}	}	4	55	47					
		M _{ZC}		"	58	00					
		M _{ZF}		4	59	20					
		C	5	00	35						
F	5	07	18								
109	Oct. 1	eP	6	19	03	A far distant quake.	
		eC	"	46							
		eF	7	04							

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks	
			h	m	s		AE	AN	Az			
			h	m	s	s	μ	μ	μ	km		
110	Oct.	2	P	19	03	01.5				259.7	W sea off the cape Irimo.	
			L	"	"	35.5						
			M _N	"	05	11	3.2		±167			
			M _E	"	"	20	3.2		±340			
			C	"	09	25						
			eF	19	17							
"	"	* "	P	19	03	03	...			244.9	Ditto.	
			L	"	"	36						
			C	"	09	20						
			F	19	16	10						
111	Oct.	8	eP	19	29	16				...	A far distant quake.	
			M _E	"	30	59	3.0		±50			
			M _N	"	31	08	3.0		±57			
			eC	"	33	50						
			eF	20	08							
112	Oct.	12	P	17	58	52	W Part of the lake Kasumi.	
			C	18	01	46						
			F	18	06	14						
113	Oct.	17	P	6	33	17				230.0	Near Daishoji town in the Prefecture Ishikawa.	
			L	"	"	48						
			M _{1N}	"	34	17	3.0		±67			
			M _{1E}	"	"	"	3.3		±83			
			C	6	36	05						
"	"	* "	P	6	33	17	Ditto.		
114	Oct.	17	P	6	36	54				200.3	Ditto.	
			eL	"	37	21						
			M _{1N}	"	"	46	3.8		+427			
			M _{1E}	"	"	"	3.7		-367			
			M _{2N}	"	38	48	3.5		+487			
			M _{3E}	"	39	26	4.0		+933			
			M _{4N}	"	40	01	3.6		+600			
			C	"	45	29						
			eF	7	02	03						
"	"	* "	P	6	36	54				200.3	Ditto.	
			L	"	37	21						
			M _{NE}	"	39	25	5.0		±540			

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		A _E	A _N	A _Z		
						s	μ	μ	μ	km	
115	Oct. 25	M _{SE}	6	39	25	4.9	±428			228.5	At Fukui city in the prefecture Fukui.
		C	"	45	04						
		F	6	58							
		P	5	19	49						
		L	"	20	19.8						
		M _{1E}	"	"	49	3.6	+1860				
		M _{1N}	"	"	"	"		+1563			
		M _{2E}	"	21	40	"		+1583			
		M _{2N}	"	22	14	"		+1250			
		M _{3E}	"	24	39	4.3	+1643				
		M _{3N}	"	"	51	4.1		+1143			
C	"	38	53	10.0	±38						
F	6	42	22								
"	" * "	P	5	19	49				185.5	Ditto.	
		eL	"	20	14						
		M _{NE}	"	21	51	4.8	±1300				
		M _{SE}	"	"	54	4.8		±1202			
		C	"	58	50						
		eF	6	35							
116	Oct. 25	P	7	22	35.5	...			237.4	Lower part of the river Kinu.	
		L	"	23	07.5						
		C	"	26	09						
		F	7	30	15						
117	Oct. 29	eP	6	15	11				215.2	Almost in the Ishikawa prefecture.	
		L	"	"	40						
		M _{1N}	"	16	28	3.5		±133			
		C	"	24	01						
		F	6	35	24						
"	" * "	P	6	15	10				222.6	Ditto.	
		L	"	"	40						
		M _{NE}	"	19	42	4.0	±27				
		C	"	23	10						
		eF	6	31							
118	Oct. 31	P	1	52	03				14.3	A local shock, near Matsugasaki.	
		L	"	"	05						
		M _{1E}	"	"	06	Very Suddenly	+67				
		M _{1N}	"	"	"			±40			
		C	"	53	00						

No.	Date	Phase	Long 135°E Time			Period	Amplitude			Δ	Remarks
			h	m	s		s	μ _E	μ _N			μ_{Z}	km
		F	2	04	35						
119	Nov. 8	eP	12	34	38	...				...	A far distant quake.
		eF	12	44							
120	Nov. 10	eP	22	36	13	...				...	Sea off Kajimanada.
		eF	22	44							
121	Nov. 19	P	10	10	38				222.6		Sea of Onahama in the prefecture Fukushima.
		L	"	11	08						
		M _{1E}	"	"	26	3.2	±150				
		C	"	13	57						
		eF	10	19							
"	" * "	P	10	10	38	...				...	Ditto.
		C	"	13	20						
		eF	10	17	30						
122	Nov. 26	P	4	03	40.5				285.7		N part of Idu.
		PS	"	"	48.5						
		L	"	04	19						
		M		極大							
		C	"	24	22	8.7	±183	±183			
		F	5	37	45						
"	" * "	P	4	03	40.5				285.7		Ditto.
		L	"	04	19						
		M	"	"	25.5		極大	"			
		C	"	16	54	6.0	±87				
		F	4	28	30						
"	" * "	P	4	03	40.5				285.7		Ditto.
		PS	"	"	48.5						
		L	"	04	19.0						
		M _E	"	05	16	4.5	-2527				
		M _N	"	"	"	3.9		±2505			
		M _Z	"	"	20	3.5			±1500		
		C _Z	"	09	27						
		C	"	18	10						
		F _Z	"	15	30						
		F	4	37	30						
123	Nov. 26	P	10	07	57				274.5		Ditte.
		L	"	08	34						

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		AE	AN	Az		
						s	μ	μ	μ	km	
		M ₁₃	10	09	08	3.5	±67				
		C	"	10	55						
		F	10	15	11						
124	Nov. 26	P	13	53	55					267.1	Ditte.
		L	"	54	31						
		M _N	"	"	53	3.5					
		C	"	55	04		±60				
		eF	14	01	20						
125	Nov. 26	P	17	43	48	...				...	Ditte.
		C	"	47	24						
		eF	18	01	25						
126	Dec. * 4	eP	4	13	15					...	A far distant quake.
		M _{NE}	"	17	35	12.3	+700				
		M _{SE}	"	"	"	12.3		-700			
		C	"	28	27						
		eF	4	38	30						
"	" * "	eP	4	13	14.5					...	
		M _E	"	17	35	12.3	-560				
		M _N	"	"	"	12.3		-650			
		C	"	27	08						
		eF	"	38	30						
		Pz	"	13	14.5						
		eFz	4	14	38						
127	Dec. 7	P	14	50	24	...				215.2	N part of Idu.
		eL	"	"	53						
		C	"	52	50						
		eF	14	55							
128	Dec. 7	P	15	05	13	...				237.4	Ditto.
		eL	"	"	45						
		C	"	07	56						
		F	15	11	45						
129	Dec. 9	P	8	38	39	...				267.1	Mouth of the river Kuma in the prefecture Fukushima.
		eL	"	39	15						
		C	"	41	31						
		F	8	45	44						
130	Dec. 13	eP	23	24	29	...				...	N part of Idu.

No.	Date	Phase	Long 135°E Time			Period	Amplitude			△	Remarks
			h	m	s		A _E	A _N	A _Z		
							μ	μ	μ	km	
131	Dec. 20	eL	...	...	...			
		eF	23	35							
		P	23	05	00	...				...	Unknown.
		C	//	09	22						
		F	23	15	25						
132	Dec. 21	P	23	56	17					274.5	Ditto.
		L	//	56	54						
		M _{1E}	//	57	12	3.5	±317				
		M _{1N}	//	//	40	3.5		±350			
		C	0	02							
		eF	0	10							
133	Dec. 24	P	8	56	40					541.7	E sea of the cape Erimo.
		S	//	57	09						
		L	//	//	53						
		M _{1E}	//	58	25	3.5	±533				
		M _{1N}	//	//	38	3.5		±517			
		C	9	02	15						
		F	9	08	47						

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新潟市西舟見町官舎
電話 一二二五番

印刷者 澁谷喜平
新潟市醫學町通一番町

印刷所 新潟活版所
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